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AKZO NOBEL INC. LEGAL & IP 120 WHITE PLAINS ROAD, SUITE 300 TARRYTOWN, NY 10591				
EXAMINER				
CORDRAY, DENNIS R				
ART UNIT		PAPER NUMBER		
1741				
NOTIFICATION DATE		DELIVERY MODE		
12/08/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPANLPATENT@AKZONOBEL.COM

### Office Action Summary

**Application No.**

10/811,133

**Applicant(s)**

KRUCKEL, RALF

**Examiner**

DENNIS CORDRAY

**Art Unit**

1741

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 8-14 and 17-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 8-14 and 17-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/12/2010 has been entered.

### ***Response to Arguments***

Applicants amendments filed 11/12/2010 have overcome the rejections of Claims 13, 14 and 23-25. The cited prior art fails to disclose a condensated naphthalene sulfonate. The indicated rejections have been withdrawn. In addition, rejections of Claims over the combination of Cenesio et al, Dilts et al, Wendel et al and Frolich et al have been withdrawn in favor of the new grounds of rejection as presented herein.

Applicant's arguments regarding the cited prior art have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues (p 7) that Cenesio et al does not teach the use of an emulsifier. As discussed in the rejections, Cenesio et al discloses mixing two sizing compositions, one comprising a cellulose reactive size, such as an alkyl ketene dimer (AKD) and the other comprising a cellulose non-reactive size such as the claimed styrene and acrylate containing copolymer. The cellulose reactive size and the cellulose non-reactive size are generally used as aqueous dispersions or emulsions. Cenesio et al does not provide details as to the composition of the dispersions or emulsions. Thus one of ordinary skill in the art would look to other sources, such as Dilts et al and Wendel et al, for compositions of sizing dispersions or emulsions.

Applicant argues (p 7) that Dilts et al states that the sizing emulsions may contain a surfactant, and only mentions ethoxylated phosphate esters as one of a vast number of different kinds of surfactants with no suggestion that such a surfactant is particularly suitable. Dilts et al discloses that "The sizing emulsions also may suitably contain at least one surfactant to facilitate their emulsion in water; such materials are well known in this art", thus provides a motive to include a surfactant, or emulsifier (col 14, lines 46-48). The surfactant is also used to provide a small particle size (col 15, lines 24-31), thus another motive is provided for its inclusion. While the number of potential surfactant species is large, only a few general kinds of surfactants are disclosed by Dilts et al, the first kind mentioned being phosphated ethoxylates which may contain alkyl, aryl, aralkyl or alkenyl substituents. The claimed oxyalkylene phosphate esters are embodied by this description (col 14, lines 63-65). In addition, Dilts et al specifically mentions ethoxylated phosphate esters (col 15, line 3), which closely reads on the

claimed oxyalkylene phosphate ester. Absent convincing evidence of unobvious results due to the claimed emulsifiers over other emulsifiers well known in the art, one of ordinary skill on the art would have found it obvious to use the disclosed ethoxylated phosphate esters with a reasonable expectation of success in obtaining an AKD emulsion having a suitable particle size.

Applicant argues (pp 7-8) that, even if the combination of Cenesio et al and Dilts et al were made, the skilled person would have to remove the stabilizer and hydrophobic substance and substitute the claimed surfactant. The open claim language permits additional components such as the stabilizer and hydrophobic substance of Dilts et al, thus it is not clear why they would have to be removed. As discussed in the preceding paragraph, the surfactant would have been obvious to include in the sizing composition of Dilts et al along with the stabilizer and hydrophobic substance.

Applicant argues (p 8) that Wendel et al discloses that no emulsifier is needed, but that a conventional emulsifier can be present in conventional amounts. Applicant further argues that the reference teaches that cationic emulsifiers are preferred.

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) Furthermore, "[t]he prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because

such disclosure does not criticize, discredit, or otherwise discourage the solution claimed....” In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Wendel et al does not teach against adding an emulsifier but discloses that , although emulsifiers are not required to obtain shear-resistant emulsions, conventional emulsifiers can be present for this purpose, thus providing a reason to include a conventional emulsifier. Wendel et al does not discredit or discourage the use of non-cationic emulsifiers but recites that anionic emulsifiers can be used and specifically mentions, as suitable anionic emulsifiers, alkyl phosphates that may be in the form of adducts with ethylene oxide (reads on the claimed oxyalkylene phosphate ester). Absent convincing evidence of unobvious results due to the claimed species over other conventional emulsifiers in the art, one of ordinary skill on the art would have found it obvious to use the disclosed ethoxylated phosphate esters with a reasonable expectation of success in obtaining a suitable sizing composition.

An additional teaching of Wendel et al is that the claimed emulsifiers are usable with cellulose non-reactive sizes such as the claimed styrene and acrylate containing copolymer.

Applicant's argues (p 9) that there is no reason based on the cited references to combine them in the manner presently claimed and that one would have to pick and choose individual aspects from various teachings and then select the claimed emulsifier in the absence of any teachings or suggestions to do so. Applicant cites Federal Circuit court cases that have required that there must be a teaching or suggestion in the prior art, within the nature of the problem to be solved, or within the general knowledge of a

person of ordinary skill in the art to look to particular sources, to select particular elements, and to combine them as combined by the inventor.

The citation of In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971) is not inconsistent with the requirements of the Federal Circuit court cases above. The citation requires consideration of what the combination of disclosures as a whole would suggest to one of ordinary skill in the art, as well as taking into account knowledge within the level of ordinary skill at the time of the invention, and not including knowledge gleaned only from applicant's disclosure.

Regarding the combination used, because Cenesio et al does not provide details as to the composition of the dispersions or emulsions that are mixed, one of ordinary skill in the art would look to other sources, such as Dilts et al and Wendel et al, for compositions of sizing dispersions or emulsions. Dilts et al and Wendel et al each list a few general kinds of surfactants or emulsifiers, one of which is the claimed kind of emulsifier. One of ordinary skill in the art would also have found it obvious that the claimed type of emulsifier is also compatible with dispersions or emulsions comprising both AKD and the claimed copolymer sizing agents, as disclosed in Cenesio et al. Alternatively, the claimed emulsifier need only be used in one of the sizing compositions of Dilts et al or Wendel et al to be present in the combined mixture of the two.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, with a reasonable expectation of success in obtaining a sizing

composition, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

The arguments against Frolich et al (p 10) are moot as Frolich et al is not used in the rejections herein.

Regarding the argued unexpected results, the Examples use a single polyoxyethylene phosphate ester (Rhodafac™ RS-710), the structure of which is unknown. The general class of polyoxyethylene phosphate esters and the further limited structure of Claim 5 include a large number of compounds. The single example used does not show unexpected results for the broadly claimed polyoxyethylene phosphate ester, which embodies oxyalkylene chains of any length and comprising any combination of oxyalkylenes, esters with any of a large number of substituents that can attach to an oxygen of the phosphoric acid or that can form the end cap of an oxyalkylene chain.

The outstanding rejections not indicated as being withdrawn are maintained, but have been modified to address the amended claims.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 8, 9, 12, 17-22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ceniso et al (US 6162328) in view of Dilts et al (US 6576049) and Wendel et al (US 4051093).



Claims 1, 5, 8, 19-21 and 26: Ceniso et al discloses an aqueous dispersion useful for internal sizing or surface sizing of paper, the dispersion comprising a cellulose-reactive size such as a ketene dimer (AKD) and a polymeric non-cellulose-reactive size having a molecular weight preferably greater than 10,000. The aqueous compositions are preferably prepared by mixing dispersions of the separate components. Ceniso et al also discloses a method of making paper comprising providing an aqueous pulp suspension of cellulosic fibers, sheeting (forming a paper web) and drying the suspension to form a paper and applying the aqueous sizing dispersion to the surface of the paper (Abs; col 2, lines 41-50; col 3, line 53 to col 5, line 17; col 6, lines 52-53 and 60-63; col 8, lines 1-6). The sizing dispersion can also be used to internally size the paper by adding the sizing agents to the pulp suspension before it is converted into a paper sheet (col 9, line 61 to col 10, line 3). Dewatering the stock to form a sheet is a typical step in papermaking and would have been obvious to one of ordinary skill in the art. Although not explicitly disclosed, adding the sizing agents in the form of the disclosed dispersion would have been obvious as a functionally equivalent option.

In some embodiments, the polymeric non-cellulose-reactive sizing agent is a copolymer comprising monomers styrene or substituted styrene and vinyl monomers, preferably including alkyl acrylate or methacrylate (col 7, lines 25-44).

Ceniso et al discloses that the sizes are generally used as emulsions or dispersions, but does not disclose the composition of the dispersions or emulsions, and does not disclose the claimed emulsifiers (col 7, lines 61-63). One of ordinary skill in

the art would thus have looked to other sources, such as Dilts et al and Wendel et al, for compositions of sizing dispersions or emulsions.

Dilts et al disclose sizing compositions for paper comprising AKD, an emulsion stabilizer and from about 0.01% to about 15% by weight of the sizing agent of a hydrophobic substance that increases the sizing efficiency of the sizing agent (Abs; col 2, lines 45-60). The compositions, in some embodiments, contain at least one surfactant to facilitate their emulsification in water, such materials being well known in the art. The surfactant is also used to provide a small particle size (col 15, lines 24-31). Suitable emulsifiers are phosphated ethoxylates which may contain alkyl, aryl, aralkyl or alkenyl substituents. The claimed oxyalkylene phosphate esters are embodied by this description (col 14, lines 46-48 and 63-65). In addition, Dilts et al also specifically mentions ethoxylated phosphate esters (col 15, line 3), which directly reads on the claimed oxyalkylene phosphate ester.

Wendel et al discloses a paper sizing emulsion comprising a non-reactive copolymer sizing agent and an anionic, nonionic or cationic emulsifier. The non-reactive copolymer comprises:

- (A) from 0.5 to 15 per cent by weight of monomers containing a C=C bond and at least one carboxyl and/or sulfonic acid or phosphate or phosphite group,
- (B) from 5 to 30 per cent by weight of monomers containing a C=C bond and a tertiary or quaternary amino group, or a nitrogen-containing heterocyclic group,
- (C) from 0 to 94.5 per cent by weight of styrene and/or acrylonitrile

(D) from 0 to 94.5 per cent by weight of acrylic or methacrylic acid esters of alkanols of 1 to 8 carbon atoms, and

(E) from 0 to 30 per cent by weight of further olefinically unsaturated monomers.

The amount of monomers C and D is at least 25%, preferably at least 70%, and up to 94.5% by weight of the polymer. Wendel et al disclose that preferred (meth)acrylic acid esters are methyl (meth)acrylates, ethyl (meth)acrylates, n-propyl (meth)acrylates, n-butyl (meth)acrylates and isobutyl (meth)acrylates (Abs; col 1, lines 33-34; col 2, lines 8-49, particularly lines 44-49; col 4, lines 63-65). Thus, in some embodiments, the polymer of Wendel et al comprises 94.5% styrene and alkyl (meth)acrylates, the remainder being other ethylenically unsaturated monomers. Note that the instant claim language allows for additional species of ethylenically unsaturated monomers. Although emulsifiers are not required to obtain shear-resistant emulsions, conventional emulsifiers, such as anionic emulsifiers, can be present for this purpose. Suitable anionic emulsifiers for use in the sizing emulsion are anionic alkyl phosphates that can be in the form of adducts of ethylene oxide (oxyalkylene phosphate esters) (col 5, lines 2-15).

The art of Ceniso et al, Dilts et al, Wendel et al and the instant invention is analogous as pertaining to sizing dispersions for paper. Dilts et al disclose that the claimed emulsifiers are well known in the art and are used for AKD sizing compositions. Wendel et al teach that the claimed surfactants are conventionally known and are suitable for the disclosed polymeric non-cellulose-reactive sizes. One of ordinary skill in the art would also have found it obvious that the claimed type of emulsifier is also

compatible with dispersions or emulsions comprising both AKD and the claimed copolymer sizing agents, as disclosed in Cenesio et al. It would have been obvious to use the claimed emulsifier in the dispersion of Cenesio et al in view of Dilts et al and further in view of Wendel et al as a conventionally known emulsifier and as a functionally equivalent option, and to have a reasonable expectation of success, the emulsifier being disclosed in the prior art as suitable for both claimed sizing agents.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Alternatively, it would have been obvious to use the claimed emulsifier separately in either or both of the disclosed AKD and polymer size dispersions as a conventionally known emulsifier for the sizes. Since Cenesio et al discloses mixing dispersions of the separate sizing components, the mixture would also comprise the claimed emulsifier.

The aqueous sizing dispersion so made is substantially the same as the claimed dispersion and obtaining the claimed stability would have been obvious to one of ordinary skill in the art because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claim 12: Ceniso et al discloses that the aqueous sizes can be used at a pH below 6 (col 7, lines 63-67). A typical size press solution has a pH between about 6 and 9 (col 8, lines 59-61). The term "about 6" overlaps the claimed upper limit of "about 6."

Claims 2, 9, 18 and 27: Dilts et al discloses that blends of surfactants can be used (col 14, lines 46-48; col 15, lines 24-27). Other suitable surfactants disclosed are quaternary salts of trialkyl amines, which correspond to the claimed cationic compound (col 14, line 64 to col 15, line 8). The surfactants and the amounts used are adjusted to provide the desired particle size (col 15, lines 9-31), thus are result effective variables. Using a combination of the claimed emulsifier and cationic organic compound in the claimed amounts would have been obvious to one of ordinary skill by routine optimization of the mixture.

Claim 3: Dilts et al discloses that the AKD sizing composition includes an emulsion stabilizer, which are well known in the art and can be a synthetic or naturally occurring anionic polymer (col 15, lines 40-49; col 16, lines 8-13).

Claims 10, 11, 13, 14, 17, 22-25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ceniso et al in view of Dilts et al and Wendel et al and further in view of Ettl et al (US 5942588).

Claims 10, 11, 13, 14, 23-25 and 28 The disclosures of Ceniso et al, Dilts et al and Wendel et al are used as above. Ceniso et al, Dilts et al and Wendel et al do not disclose a condensated naphthalene or lignin sulfonate.

Ettl et al discloses that AKD dispersions are usually prepared with the aid of assistants, such as anionic or nonionic emulsifiers and naphthalene/formaldehyde/sulfonic acid condensate, which are usually present in the AKD dispersion (col 6, lines 18-24). This teaching is considered to be generally known in the art.

The art of Cenisio et al, Dilts et al, Wendel et al, Ettl et al and the instant invention is analogous as pertaining to sizing dispersions for paper. It would have been obvious to include the claimed naphthalene sulfonic acid condensate with the anionic emulsifier in the dispersion of Cenisio et al in view of Dilts et al and Wendel et al and further in view of Ettl et al as a typical assistant used to prepare AKD dispersions. The naphthalene sulfonic acid condensate can function as the claimed stabilizer for reasons previously given. Since Dilts et al teaches that the amounts of surfactants used are adjusted to provide the desired particle size, and thus are result effective variables, obtaining the claimed amounts of anionic stabilizer would have been obvious to one of ordinary skill by routine optimization of the mixture. Also, since the amounts of anionic emulsifier, cationic emulsifier and anionic stabilizer are result effective variables and since optimization of the amounts within the claimed ranges would have been obvious, obtaining a predominantly anionic dispersion would also have been obvious as a result of optimizing the amounts.

Claims 17 and 22: Cenisio et al does not explicitly disclose homogenizing the mixture of size dispersions. Ettl et al discloses that dispersions of sizing agents are typically prepared using conventional apparatus such as a homogenizer (col 5, lines 63-

67). It would have been obvious to one of ordinary skill in the art to homogenize the mixture as is typical in the art to achieve a dispersion.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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